



Australian spore-feeding Thysanoptera of the genus *Bactrothrips* (Phlaeothripidae – Idolothripinae)

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Abstract

Six species, including four new species, are recognised from Australia in *Bactrothrips*, and *Lasiothrips* Moulton is synonymised with this genus. This group of spore-feeding thrips is widespread on dead leaves across the Old World tropics from Africa to Japan. The Australian species are mainly associated with dry fruiting capsules of *Eucalyptus* trees. Males usually have lateral tubercles on the abdomen, but no fore tarsal teeth, and the significance of this in sexual behaviour is noted.

Key words: Idolothripinae, Idolothripina, *Bactrothrips*, new species

Introduction

Sexual dimorphism and male polymorphism are common amongst fungivorous thrips in both subfamilies of Phlaeothripidae, the Idolothripinae and Phlaeothripinae, and variation in male size is often accompanied by allometric growth patterns involving various body parts (Palmer & Mound, 1978; Eow *et al.*, 2011). This variation in structure is a product of competitive behaviour between males for sexual partners (Mound, 2005), such that larger males fight with each other whereas the smallest males attempt to sneak mate (Crespi, 1986, 1988, 1989). In most such species, males have enlarged fore femora and a tooth on each fore tarsus, and they use these front legs in attempts to stab their rivals during combat. In contrast, a fore tarsal tooth is not developed in males of one Palaeotropical group, the subtribe Idolothripina, and these males usually have one or more pairs of lateral tubercles on the abdomen. These males also have tergite IX setal pair S2 short and stout, a condition more typical of males in the subfamily Phlaeothripinae, whereas males of most Idolothripinae have these setae long. Sexual interactions within species of Idolothripina are little studied, but males appear to use lateral flicking movements of their abdomen when competing with rivals (Kranz *et al.*, 2002).

The species of the Idolothripina are amongst the largest of all thrips, with slender bodies about 10–15 mm in length. The black adults and their red larvae are commonly found in colonies within bunches of dead hanging tree leaves, particularly in tropical countries. In Australia, however, some species are particularly associated with the dead fruiting capsules of various species of *Eucalyptus*. Worldwide, the Idolothripina includes about 65 described species in 10 genera, but 46 of these species are members of the single genus *Bactrothrips*, with the other 20 species scattered through the nine nominal genera. Some of these genera were erected more than 100 years ago, and their names are entrenched in the northern hemisphere literature with almost no consideration of their phylogenetic significance. Relationships amongst the Idolothripina genera thus remain poorly defined (Eow *et al.*, 2011), in part because of the lack of studies on variation within and between the species of this essentially tropical group. The purpose of this paper is to provide an identification system to the Australian species of *Bactrothrips*, a genus that is widespread around the Old World tropics. As a result of these studies, the genus *Lasiothrips* is considered a synonym of *Bactrothrips*, and there are now 51 species listed in this genus. Full nomenclatural information about Thysanoptera is available on the web (Mound, 2011).

Acknowledgements, abbreviations and depositories

The work was produced in response to a grant received from the Australian Biological Resources Study. The authors are grateful to three referees for their comments and criticisms. Holotypes are deposited in the Australian National Insect Collection, CSIRO, Canberra, with paratypes in the Queensland Primary Industries Insect Collection, Brisbane. The following abbreviations are used for pronotal setae: am—anteromarginals; aa—anteroangulars; ml—midlaterals; epim—epimerals; pa—posteroangulars; pm—postero-submarginals.

Bactrothrips Karny

Bactrothrips Karny, 1912: 131. Type-species *B. longiventris* Karny

Lasiothrips Moulton, 1968: 121. Type-species *L. perplexus* Moulton. **syn.n.**

Of the 46 species listed in *Bactrothrips*, 34 are described from Africa or Madagascar, with most of these known from single individuals and thus no information on intraspecific variation. In this genus, an identification key is available only for the seven species known from Japan (Okajima, 2006). Among the African species there is considerable variation in the number and form of lateral tubercles on the abdomen of males. In different species these are present on one or more of segments V–VIII, their shape is either simple or bifurcate, and in a few species they are completely absent. Six genera have been erected for these variants, but these are now all placed as synonyms. A further complication is that three genera related to *Bactrothrips* have been distinguished because the pronotal epimeral sutures are complete rather than incomplete. Each of these three genera, *Egchocephalothrips* from New Caledonia, *Cylindrothrips* from Southwest Africa, and *Lasiothrips* from Australia, was based on a single specimen, and each of these specimens is slightly crushed. The apparently complete nature of the epimeral sutures is thus probably an artifact, with *Lasiothrips* here considered a synonym of *Bactrothrips*, and the condition of the epimeral sutures discussed below under *B. perplexus*. A third character used for distinguishing taxa in the subtribe Idolothripina is the position of the maxillary stylets within the head (Mound & Palmer, 1983). Nine species are placed in either *Bacillothrips* or *Megalothrips* because the stylets are deeply retracted into the head and very close together medially. In contrast, six species with the stylets deeply retracted but well separated within the head are placed in *Megathrips*, whereas species placed in *Bactrothrips*, *Idolothrips* and *Meiothrips* have the stylets widely separated and low in the head. The six species here recorded from Australia exhibit the full range of states of all three of the characters mentioned above, thus throwing further doubt on the current generic classification.

Key to Australian species

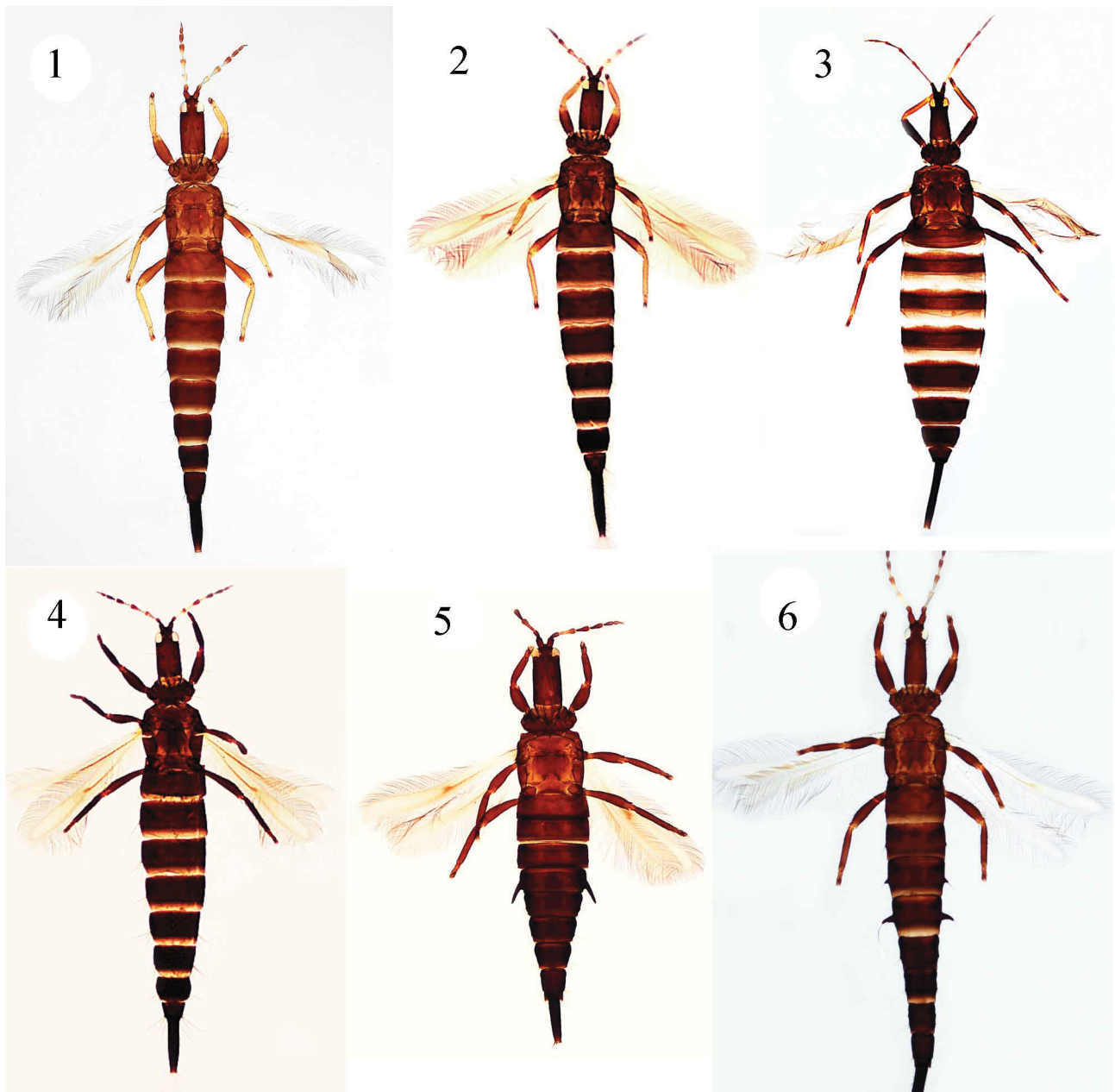
1. Antennal segment III more than 1.4 times as long as head width across eyes (Fig. 11); major setae on head and pronotum capitate and colourless; sensoria on antennal segment III no longer than apical width of segment; tube (Fig. 3) more than 1.3 times as long as head with lateral setae short and sparse *cookae* **sp. n.**
- . Antennal segment III much shorter than head width across eyes; major setae on head and pronotum pointed or blunt, usually dark; sensoria on antennal segment III usually much longer than apical width of segment; tube less than 1.2 times as long as head, with prominent lateral setae 2
2. Tarsi, tibiae and apices of femora, almost clear yellow (Figs 1, 2) [male without tubercles on abdomen (Fig. 1)] *aliceae* **sp.n.**
- . Tarsi and entire tibiae dark brown (Figs 4–6) [male with or without abdominal tubercles] 3
3. Antennal segment IV uniformly dark brown, III dark brown at apex but yellowish brown in basal half; pronotal epimera with 2 pairs of long weakly shaded setae (Fig. 18); male with prominent paired tubercles laterally on abdominal segment V (Fig. 20); male with row of tubercles dorsally on tube (Fig. 21) *kranzae* **sp.n.**
- . Antennal segment IV yellow in basal half, III yellow with apex light brown; pronotal epimera with inner setal pair less than 0.5 times as long as dark major seta; male with or without abdominal tubercles, if present, then on segments IV and V (Fig. 6) ... 4
4. Mid-dorsal setae on head about 0.9 of head width across eyes (Fig. 16); male not known *houstoni* **sp.n.**
- . Mid-dorsal setae on head less than 0.6 of head width across eyes (Fig. 22); male with or without abdominal tubercles 5
5. Metanotum strongly reticulate; antennal segment III about 1.2 as long as IV; male without tubercles on abdomen. ... *perplexus*
- . Metanotum between median setae without sculpture (Fig. 24); antennal segment III less than 1.1 as long as IV; male abdominal segments IV–V with tubercles (Fig. 6, 23) *nativus*

***Bactrothrips alicae* sp.n.**

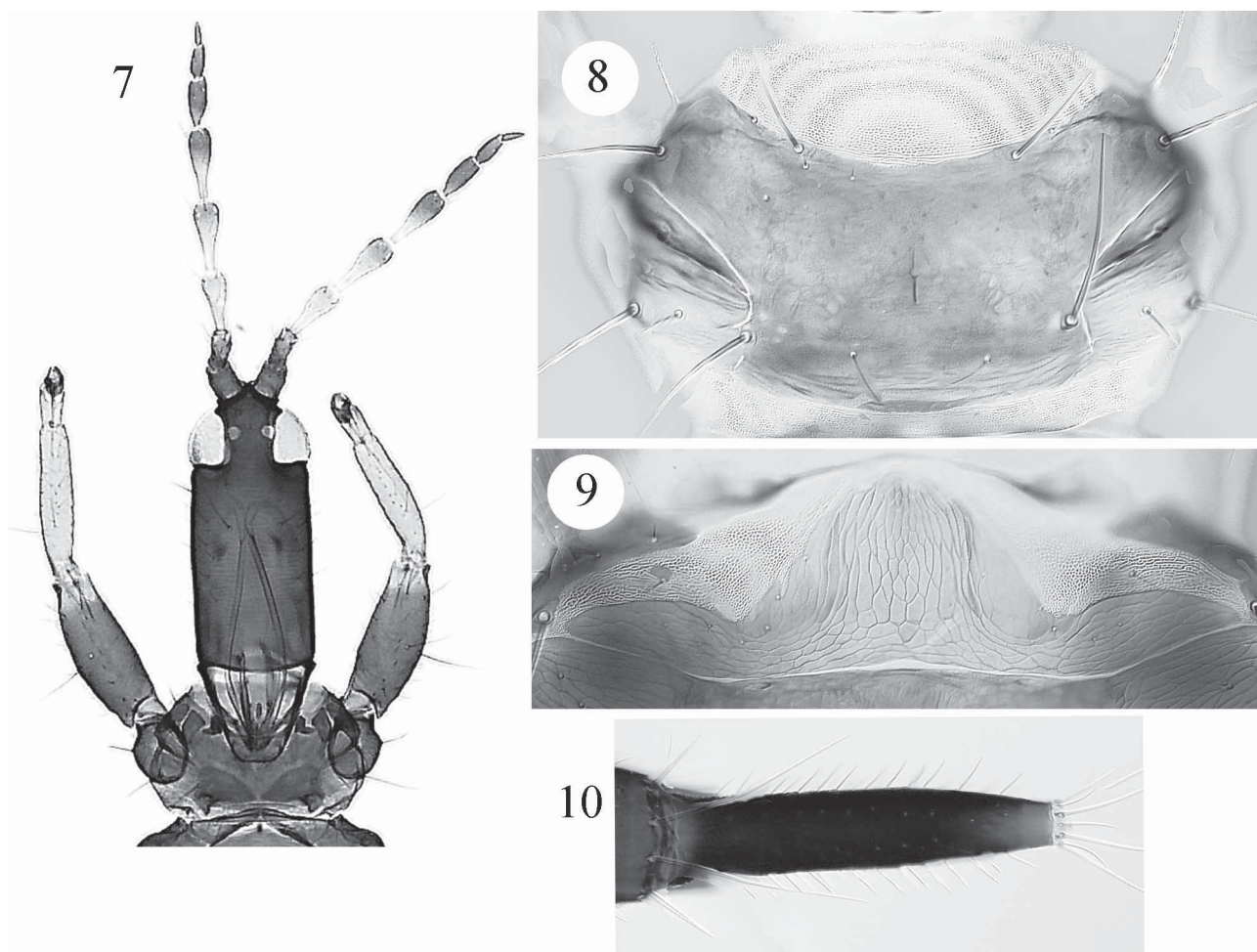
(Figs 1–2, 7–10)

Male macroptera. Body uniformly dark brown (Fig. 1), tarsi, tibiae and extreme apices of femora yellow; antennal segments I–II brown, III yellow, IV–V yellow but shaded in distal 0.3–0.5, VI–VIII brown; major setae on head and pronotum dark, lateral setae on abdomen paler; fore wings variably shaded with brown longitudinal band medially in basal half.

Head longer than wide, projecting in front of eyes, weakly transversely striate; ocellar setae long, about as long as width of one eye; one pair of postocellar setae slightly longer than an ocellus; postocular setae short but variable, 2.0–3.0 times as long as width of an ocellus; mid-dorsal setae pointed, long, at least 0.6 of width across eyes; cheeks with several pairs of minor setae. Maxillary stylets retracted almost to eyes, close together at anterior but diverging near posterior of head (Fig. 7). Antennae 8-segmented; segment III length less than 0.5 of head width across eyes and less than 2.5 times as long as apical width (Fig. 7), III with 2 sensoria, IV with 4, these sensoria about 2.0 as long as apical width of segment.



FIGURES 1–6. Australian species of *Bactrothrips*. (1) *alicae*, male; (2) *alicae*, female; (3) *cookae*, female; (4) *houstoni*, female; (5) *kranzae*, male; (6) *nativus*, male.



FIGURES 7–10. *Bactrothrips alicae*. (7) head & pronotum; (8) pronotum; (9) pelta; (10) tube.

Pronotum with 5 pairs of pointed major setae (Fig. 8); anterior margin concave; epimeral sutures complete, or almost complete. Metanotal median setae slender, on anterior third, with weak reticulate sculpture between these setae. Prosternal basantra weak, ferna triangular; mesopraesternum boat-shaped; metathoracic sternopleural sutures absent; anapleural suture strong but incomplete. Fore wings broad, with about 40 duplicated cilia.

Pelta with reticulate sculpture slightly longitudinal; broad lobes reaching lateral margins (Fig. 9). Tergites II–VII with 2 pairs of sigmoid wing retaining setae; II with about 10 minor discal setae laterally; III–VII with posteroangular setae S1 and S2 similar in length; tergite IX setae S1 about 2.7 times as long as S2 and 0.5 as long as tube, S2 stout; tube about 0.9 as long as head, weakly constricted near apex, with many prominent lateral setae (Fig. 10). Sternites with an irregular single or double transverse row of discal setae, no pore plates.

Measurements (holotype male in microns). Body length 4600. Head, length 600; width across eyes 250; ocellar setae 110, postocular setae 55, major mid-dorsal setae 150. Pronotum, length 180; maximum width 450; major setae, am 85, aa 85, ml 100, epim 180, pa 150; pm 45. Metanotum median setae length 50–75. Pelta length 140, width 490. Tergite IX setae S1 330; S2 120. Tube length 570. Antennal segments III–VIII length, 120, 147, 147, 95, 64, 47.

Female macroptera. Similar to male but larger. Tergite IX with setae S1 and S2 similar in length. Tube slightly longer than head.

Measurements (paratype female in microns). Body length 6100. Head, length 740; width across eyes 300; ocellar setae 130, post ocular setae 45, major mid-dorsal setae 150. Pronotum, length 190; maximum width 500; major setae, am 90, aa 70, ml 100, epim 160, pa 150; pm 40. Metanotum median setae length 35. Pelta length 185, width 610. Tergite IX setae S1 400; S2 450. Tube length 780. Antennal segments III–VIII length, 150, 190, 185, 120, 65, 60.

Specimens examined. Holotype male: **New South Wales**, Crystal Creek, ex *Lophostemon* nuts, 24.xii.2006 (LAM4992).

Paratypes: **New South Wales**, 8 females collected with holotype; Wallaga Lake, near Bermagui, 4 females, 4 males and larvae from dead *Eucalyptus* nuts. **Victoria**, Mallacoota, Wingan Inlet, 28.xii.2004, 1 female, 2 males from dead *Eucalyptus* nuts. **Queensland**, Brisbane: Mt Coot-tha, 1 female from dead *Eucalyptus* leaves and branches, 10.iii.2006; Gap Creek Reserve, 4 females from dead *Eucalyptus* leaves, 31.xii.2007; Indooroopilly, Longpocket, 1 female from dead *Eucalyptus* leaves, 10.iii.2006; Mt Glorious, 2 females from dead leaves and branches, 10.v.2007. Lamington N.P., O'Reilly's, 1 female, 3 males from *Lophostemon confertus* nuts, 14.iii.2007. Mt Gammie, 1 female from dead wood, 15.ix.2009.

Comments. This species seems to share much the same distribution and habitat as *Bactrothrips nativus*, in old *Eucalyptus* capsules in the eastern forests of Australia, and the two species are found sometimes at the same locality. However, as detailed below under *nativus*, they differ considerably in colour and in structure, particularly the males in the presence or absence of abdominal tubercles.

Bactrothrips cookae sp.n.

(Figs 3, 11–13)

Female macroptera. Body uniformly brown (Fig. 3), femora brown, fore tibiae light brown, mid and hind tibiae brown with yellow apices, tarsi brown but paler at base; antennal segments I–II brown, III brown distally but with stem brownish yellow, IV–VIII brown; fore wings shaded with brown longitudinal band medially in basal half; major setae on head and pronotum colourless, on posterior abdominal segments weakly shaded.

Head longer than wide, projecting in front of eyes, vertex weakly transversely striate, cheeks slightly concave (Fig. 11); ocellar setae and postocellar setae about as long as width of a compound eye, postocular setae slightly longer; mid-dorsal setae about 0.5 as long as width of head across eyes, these setae all weakly capitate; cheeks with pair of strong setae behind eyes. Postocular region 0.7 length of head. Maxillary stylets of holotype extruded, possibly not retracted as far as eyes. Antennae 8-segmented, segment III more than 1.4 times of head width across eyes and 9 times as long as apical width (Fig. 11); segment III with 2 sensoria, IV with 4, these sensoria no longer than apical width of segment.

Pronotal anterior margin weakly concave; major setae weakly capitate including pm setae; aa and ml setae arise close together (Fig. 12); 2 pairs of epimeral setae, epimeral sutures incomplete. Mesonotum eroded at anterior margin with strong reticulate sculpture and microtrichia medially near anterior margin, 2 pairs of lateral campaniform sensilla present. Metanotum with strong reticulate sculpture (Fig. 13), one pair of major setae and several smaller pairs of setae on anterolateral margins.

Prosternal basantra weak, ferna large; mesopraesternum boat-shaped; sternopleural sutures absent; anapleural suture strong and incomplete. Fore wing broad with at least 35 duplicated cilia.

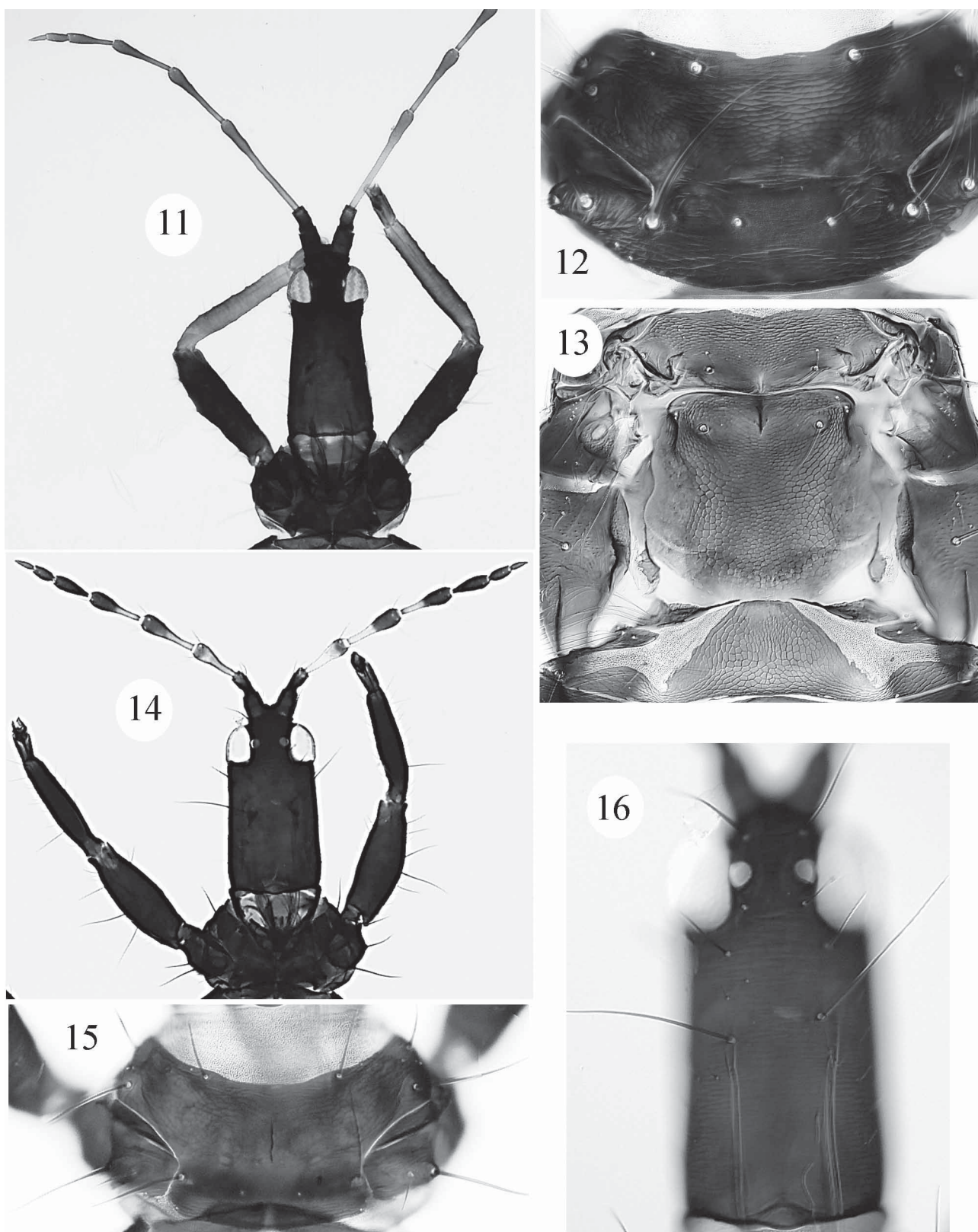
Abdomen broad, tergites short and wide; pelta with reticulate sculpture, broad lobes reaching lateral margins (Fig. 13). Tergites with 2 pairs of wing retaining setae, each anterior pair reduced, with few minor setae laterally; Tergal setae S1 on III–VI as long as median length of tergite, longer than S2; tube about 1.4 times as long as head with sparse, weak lateral setae. Sternites with a complete row of discal setae medially.

Measurements (holotype female in microns). Body length 7200. Head, length 800; width across eyes 340; ocellar setae 90, postocular setae 85, major mid-dorsal setae 180. Pronotum, length 300; maximum width 620; major setae, am 160, aa 180, ml 230, epim 250, 130; pa 250; pm 70. Metanotum median setae length 120. Pelta length 210, width 930. Tergite IV setae S1 400, S2 280; tergite IX setae S1 400, S2 400. Tube length 1150. Antennal segments III–VIII length, 470, 325, 260, 185, 90, 70.

Male: unknown.

Material studied. Holotype female: **Western Australia**, Stirling Range N.P., v. 2008, flying under *Eucalyptus* tree (Lynn Cook).

Comments. This is the largest of the Australian species in this genus. The only available specimen has the abdomen unusually broad, the head has the cheeks concave, and the antennae are remarkably slender. It shares with *kranzae* the unusual condition of having two pairs of major setae on each pronotal epimeron.



FIGURES 11–16. *Bactrothrips* spp. (11–13) *cookae*: (11) head & pronotum; (12) pronotum; (13) mesonotum, metanotum & pelta. (14–16) *houstoni*: (14) head & pronotum; (15) pronotum; (16) head.

***Bactrothrips houstoni* sp.n.**

(Figs 4, 14–16)

Female macroptera. Body and legs uniformly brown (Fig. 4); antennal segments I–II brown, III mostly yellow with shaded apex, IV–V yellow with sharply brown distal half, VI–VIII brown; fore wings shaded with longitudinal brown medial band in basal half; all major setae dark brown and pointed.

Head longer than wide, projecting in front of eyes, vertex weakly transverse striate, cheeks almost straight; ocellar setae about 2.0 as long as width of compound eye; post ocellar setae about twice as long as width of an ocellus; postocular setae about as long as width of an eye; mid-dorsal setae long, 0.9 of head width across eyes (Fig. 14), cheeks with pair of strong setae behind eyes. Postocular region 0.7 length of head. Maxillary stylets about one third of head width apart, retracted almost to postocular setae (Fig. 16). Antennae 8-segmented; segment III less than 0.5 of width across eyes, about 3.2 times as long as maximum width; III with 2 sensoria, IV with 4, these sensoria more than twice as long as apical width of segment.

Pronotal anterior margin concave; five pairs of major setae present; epimeral sutures complete (Fig. 15). Mesonotum eroded at anterior margin with strong reticulate sculpture and microtrichia medially near anterior margin, 1 pair of lateral campaniform sensilla present. Metanotum with strong reticulate sculpture, one pair of major setae and several smaller pairs of setae on anterolateral margins. Prosternal basantra weak, ferna large; mesopraesternum boat shaped; sternopleural sutures absent. Fore wing broad with about 45 duplicated cilia.

Pelta with reticulate sculpture, and broad lobes reaching lateral margins. Tergites with 2 pairs of wing retaining setae, few minor setae laterally, medially with small groups of minute setae; III–V setae S2 longer than S1; tergite IX setae S1 and S2 about as 0.7 times as long as tube; tube slightly longer than head, weakly clavate and with many weak lateral setae. Sternites with complete row of discal setae medially.

Measurements (holotype female in microns). Body length 5450. Head, length 620, width across eyes 290, ocellar setae 145, postocular setae 50, major mid-dorsal setae 270. Pronotum, length 215; maximum width 520; major setae, am 100, aa 130, ml 180, epim 200, 60; pa 150; pm 40. Metanotum median setae length 60–75. Pelta length 180, width 580. Tergite IV setae S1 300, S2 350; tergite IX setae S1 500, S2 450. Tube length 680. Antennal segments III–VIII length, 160, 190, 175, 120, 75, 65.

Male: unknown.

Material studied. Holotype female: **Queensland**, Beerwah, 12.x.1985, from dead *Casuarina* (LAM1895).

Comments. The maxillary stylets of the only available specimen appear to be in their natural position. They are further apart and less deeply retracted than in *aliceae* and *kranzae*, and more widely separated than in *nativus*. The setae on the head are unusually long and dark, with long finely pointed apices.

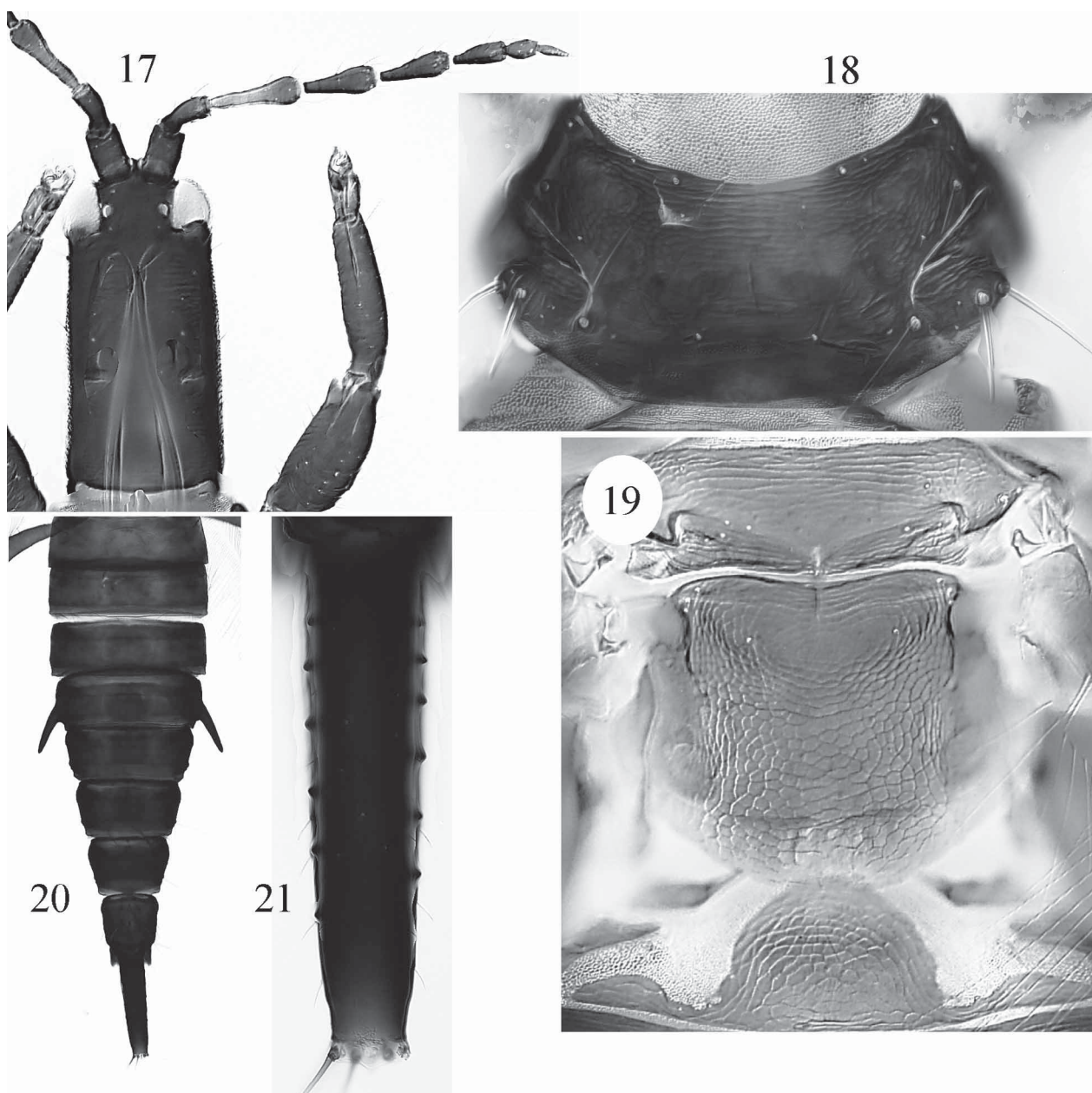
***Bactrothrips kranzae* sp.n.**

(Figs 5, 17–21)

Male macroptera. Body and legs uniformly brown (Fig. 5); antennal segments I–II brown, III mostly yellowish brown with apex more darkly shaded, IV–VIII brown; fore wings weakly shaded with longitudinal brown area thickened medially; major setae weakly shaded.

Head longer than wide and slightly projecting in front of small eyes, vertex weakly transverse striate, ocellar setae about 0.3 of width across eyes, postocular setae about as long as width of an ocellus, 1 pair of mid dorsal setae about 0.3 as long as width across eyes, few minor cheek setae; major head setae pale brown and blunt. Postocular region 0.8 length of head. Maxillary stylets retracted almost to eyes (Fig. 17). Antennae 8-segmented; segment III length less than 0.5 of width across eyes, segment III with 2 sensoria, IV with 4, these sensoria slightly longer than the apical width of segment.

Pronotum small, anterior margin concave; am setae broken in holotype, four pairs of pale major setae, aa setae shorter than pa; epimera with 2 pairs of long setae (Fig. 18), sutures incomplete. Mesonotum eroded at anterior margin with strong reticulate sculpture and microtrichia absent near anterior margin, 1 pair of lateral campaniform sensilla present. Metanotum with strong reticulate sculpture (Fig. 19), one pair of major setae and several smaller pairs of setae on anterolateral margins; campaniform sensilla absent. Prosternal basantra weak, ferna elongate and triangular; mesopraesternum broadly boat-shaped; sternopleural sutures absent. Fore wing broad with about 30 duplicated cilia, surface with longitudinal rugose area.



FIGURES 17–21. *Bactrothrips kranzae*. (17) head & antenna; (18) pronotum; (19) mesonotum, metanotum & pelta; (20) male, abdomen; (21) male, tube.

Pelta with reticulate sculpture, slender lobes almost reach lateral margins; tergites with 2 pairs of wing retaining setae, anterior pair reduced, several pairs of minor setae laterally; III–IV setae S1 slightly longer than S2; V with pair of strong lateral tubercles (Fig. 20); tergite IX setae S1 2.5 times as long as S2 and 0.6 as long as tube, setae S2 stout; tube about 0.8 times as long as head, with paired row of 6 small stout tubercles on dorsal surface (Fig. 21), laterally with few weak setae. Sternites with complete row of discal setae medially, pore plates absent.

Measurements (holotype male in microns). Body length 3620. Head, length 560, width across eyes 240, ocellar setae 75, postocular setae 30, major mid-dorsal setae 75. Pronotum, length 180; maximum width 450; major setae, am lost, aa 40, ml 65, epim 120, 90; pa 100; pm 40. Metanotum median setae length 45. Pelta length 140, width 490. Tergite IV setae S1 120, S2 110; tergite IX setae S1 230, S2 110. Tube length 445. Antennal segments III–VIII length, 160, 125, 120, 85, 60, 55.

Female macroptera. Similar in colour and structure to male, compound eyes small, epimera with 2 pairs of long setae, but tube without paired rows of dorsal tubercles.

Material studied. Holotype male: **South Australia**, Adelaide, Scott Creek Park, 27.vi.2005, from *Eucalyptus* dead leaves (B. Kranz).

Paratypes: **South Australia**, Adelaide, Scott Creek Park, 28.xi.2005, 1 female from *Eucalyptus* seed capsules. **Western Australia**, 60km NE of Narrogin, October 2006, 1 female fogging *Eucalyptus* (A. Lyons).

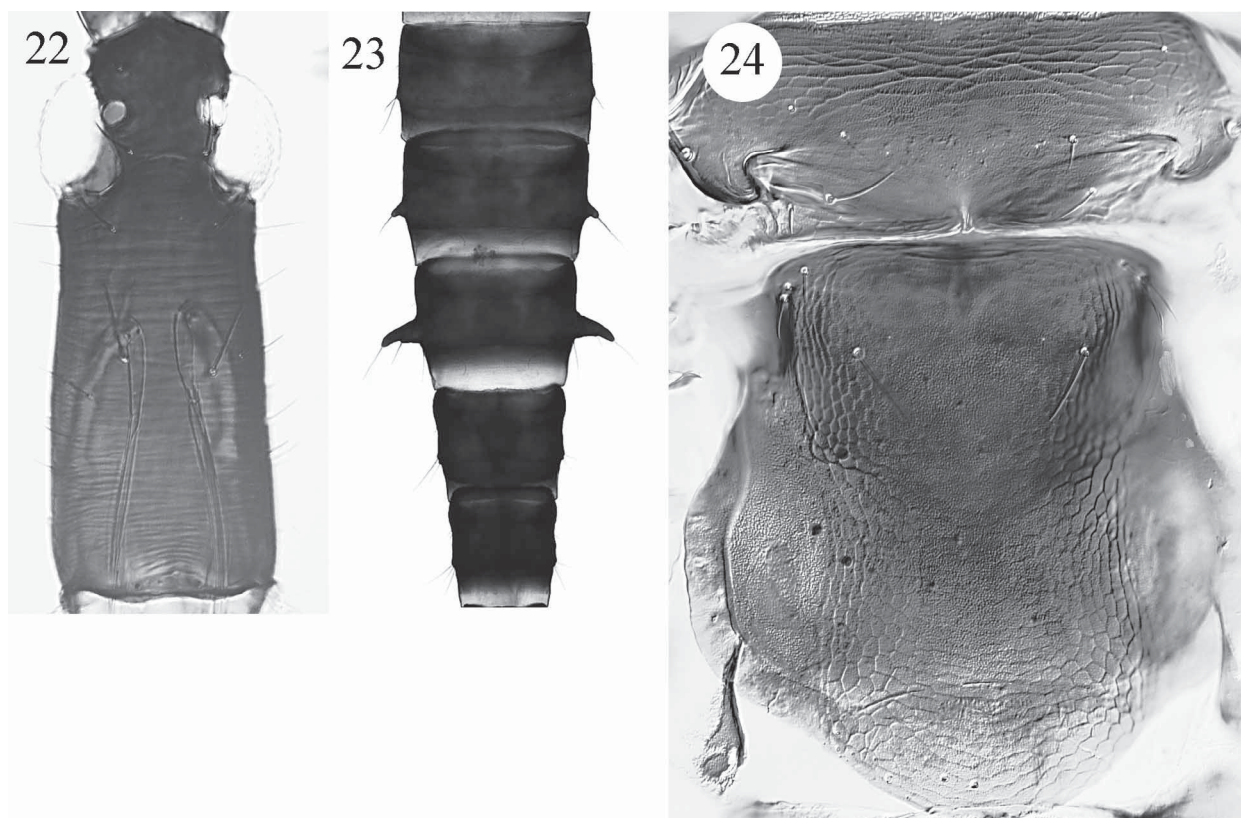
Comments. The maxillary stylets in this species are more deeply retracted and closer together than any other member of the genus from Australia, but the major setae are almost as pale as in *cookae*. The male has a pair of long tubercles on tergite V, but no indication of any tubercles on IV in contrast to *aliceae*. The compound eyes are unusually small in both sexes, the setae on the head are all short, and the pronotal epimera bear two pairs of long setae. This species was collected near Adelaide at the same locality as some specimens of *nativus*.

***Bactrothrips nativus* (Girault)**

(Figs 6, 22–24)

Idolothrips nativus Girault, 1928: 2

Described from Southeast Queensland, this species is widespread in the east coast forests of Australia south to Tasmania. It appears to breed particularly within the old fruit capsules (nuts) of various species of *Eucalyptus*, including *E. obliqua*. Sometimes, it has been collected at the same localities as *B. aliceae*. It shares many character states with that species, including the form of the tube, the variation in the lengths of the setae on the head and pronotum, and the extent to which the pronotal epimeral sutures are complete. It differs as follows: hind tibiae and tarsi dark brown; antennal segment III 3.5 times as long as apical width; head with stylets retracted scarcely anterior to mid-dorsal setae (Fig. 22); metanotum with no sculpture between the median setal pair (Fig. 24); male with tubercles on tergites IV and V (Figs 6, 23).



FIGURES 22–24. *Bactrothrips nativus*. (22) head; (23) male, abdomen; (24) mesonotum & metanotum.

Material studied. **Queensland**, Brisbane: Taringa, holotype male, 26.viii.1928, (Queensland Museum); Mt Coot-tha, 1 male, 2.vi.1929, 1 female, dead leaves and branches, 10.iii.2006; Gap Creek Reserve, 3 females, dead leaves, 31.xii.2007. **New South Wales**, Queanbeyan, Talaganda, 2 males from *Eucalyptus* nuts, 24.vi.2006; 2 females 3 males from *Eucalyptus* dead twigs, 6.viii.2006; 1 female from dead *Eucalyptus* leaves, 12.xi.2006; 2 females 2 males from *Eucalyptus* nuts, 27.ii.2011. Taree, 1 female, 19.v.2004. Eden, East Boyd State Forest, 1

female in malaise trap, 12.i.2005. Wallaga Lake, near Bermagui, 1 female from dead *Eucalyptus* nuts, 27.xii.2010. **Victoria:** Mallacoota, 7 females 2 males from old *Eucalyptus* nuts, 1.iv.2011; Cann River 25km north, 1 male 1 female from dead *Eucalyptus* leaves, 2.iv.2011. **South Australia,** Adelaide Hills: Stirling, 1 female 1 male from *Eucalyptus* nuts, 8–14.iv.2004; Scott Creek Park, 2 females 1 male from *Eucalyptus* dead leaves 27.vi.2005; Mt George, 1 female 5 males from dead *Eucalyptus* leaves, 31.x. 2005, 28.xi.2005, 19.xii.2005 & 9.i.2006. Mt Gambier 40km SE, 3 females 3 males from *Eucalyptus obliqua* nuts, 12.iii.2011. **Tasmania,** 17 Mile Plain, 2 males from *Eucalyptus* dead wood and nuts, 11.iii.2010.

***Bactrothrips perplexus* (Moulton) comb.n.**

Lasiothrips perplexus Moulton, 1968: 122

The genus *Lasiothrips* was retained by Mound & Palmer (1983) on the basis of two character states: the position of the maxillary stylets, and the complete epimeral sutures, as illustrated by Mound (1974). However, those authors recognised that both of these conditions seemed likely to be the result of damage to the single available specimen, such that the pronotum is slightly crushed, and the stylets are partially extended from the mouth cone. They suggested that *perplexus* might be placed in *Megalothrips*, but in view of the variation amongst the other species here described from Australia, *perplexus* is equally well placed in *Bactrothrips*. The head, despite being slightly crushed, is essentially similar in structure and chaetotaxy to that of *nativus*. There is a pair of prominent pre-ocular setae, and the paired post-ocular setae are almost as stout as the postocular setae with the mid-dorsal pair even longer. The stylets are about one third of the head width apart, but when fully retracted are likely to be closer together medially. The pelta has elongate lateral wings, and there are two pairs of wing retaining setae on the tergites. As in *B. alicae*, the male has no lateral tubercles on the abdomen, but the metanotum is strongly reticulate medially.

Material studied. Holotype male: **Queensland**, Magnetic Island (A.M. Lea), in California Academy of Sciences.

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